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STEADILY INCREASING SUGAR INDUSTRY IN CHINA

~~Source: Chugoku Shogyo Shashin Tsushin (Photos and Features on Chinese Industry), Tokyo, No. 69, June 1966, pp 1-8~~

Sugar Industry Supported by Rich Harvest of Raw Materials Crops

Sugar manufacturing in China is a seasonal industry starting around October, the harvest season for sugar cane and sugar beets, and lasting until March or April of the following year. The 1965-1966 sugar manufacturing season is roughly over by now. Due to the unprecedented rich harvest of sugar raw material crops last year, the national sugar output showed a 20% increase over that of the previous year, which had been the highest in China's history. As a result of this phenomenal increase in sugar production over two consecutive years, the supply of sugar on the Chinese market is fairly plentiful.

Prior to the liberation, the sugar industry in China reached its highest output in history in 1936--414,000 tons--which due to war damages decreased to 199,000 tons in the year of the establishment of the New China. Rapid restoration and progress since then brought the output to 1.13 million tons by 1959. However, the natural calamities over three consecutive years from 1959 have severely damaged the sugar raw material crop and have drastically reduced the sugar output. The cultivated acreage for sugar cane and sugar beets in 1949 was 124,130 ha [sic], which increased to 425,930 ha by 1957. Furthermore, in 1958 there was an increase in acreage of 66,600 ha for sugar cane and of 146,600 ha for sugar beets. Due to the continued natural calamities from 1959, a portion of this acreage has been converted to food production

thus further decreasing the harvest of sugar raw material crops.

Against this background it should be readily understandable that many sugar manufacturing plants have been constructed since the establishment of the New China, some of which have been closed down since then due to the shortage of raw material supply. Since then, however, in line with the recovery of agricultural production the production of sugar raw materials has increased and consequently the sugar output has also increased. (As for the sugar manufacturing industry in China for the year of 1964, refer to No 21, 1 June 1964 of this periodical).

Unprecedented Increase in Production in the 1964-1965 Sugar Manufacturing Season

In such major sugar cane-producing areas in China as the provinces of Kwangtung, Kwangsi, Szechwan, Fukien and Yunnan, in 1964 there was a 50% increase in sugar cane acreage over the previous year and also a 20% increase for perennial sugar cane. (The harvest quantity for perennial sugar cane per unit area is 20-30% higher than the newly cultivated ones.)

In major northern sites of sugar beet production such as the provinces of Heilungkiang, Kirin, and Inner Mongolia, the planted acreage showed a 50% increase over last year, and the crop per unit area also showed a drastic increase. Prior to the liberation, the cultivation of sugar beets was largely limited to Heilungkiang Province. At present, however, they are widely cultivated in such provinces as Kirin, Inner Mongolia, Sinkiang, and Shansi. The province of Heilungkiang, ranking the highest in cultivated acreage and output of sugar beets, showed a considerable increase in sugar beet harvest over 1964.

Although the actual planted acreage in 1964 for sugar raw material crops was less than that for 1958, the implementation of collective farming and concentrated planting has resulted in an increase of per unit area harvest and consequently in a total output greater than 1958. In order to enable the processing of this rich harvest of raw materials at the proper time, the government has made a sizeable investment and restored or constructed 30 or more large or medium-sized sugar manufacturing plants, and has also expanded the production capacity of existing plants. The net result was that a total of more than one hundred sugar manufacturing plants was put into operation. At the same time, through further learning, training and effort, the workers at each sugar manufacturing plant have made possible the production of a greater amount of sugar from the same amount of raw materials.

In this manner, the 1964-65 sugar manufacturing season has witnessed the highest record in history as regards quantity of manufacture in China. It was a 59% increase over the previous season (the increase of white sugar was 66%), and a 20% increase over the 1958-59 season, which had been the highest up to the present time. In other words, a 20% increase over the 1959 harvest of 1.13 million tons would be 1.356 million tons.

Not only has the production quantity of sugar increased; the quality and grade have also improved accordingly. Along with the improvement of manufacturing techniques at each plant, there was a reduction in raw material consumption and production costs. Not only has each plant tried for the increased production of white sugar, but several large sugar manufacturing plants have also promoted the production and consumption of a variety of products such as refined sugar, disk sugar, and granule sugar.

Further Increase in the 1965-66 Season

The planted acreage for sugar raw material crops has further increased in 1965, reaching the highest point in several years. The province of Kwangtung, a major sugar cane-producing area, has exceeded its share of the national plan by 23,000 ha, and other provinces such as Szechwan and Kwangtung [sic] have also exceeded their goals of planted acreage. In general, the acreage allotted for perennial sugar cane has expanded, and the proportion of perennial sugar cane is approximately two-thirds of the planted acreage in such provinces as Kwangtung, Fukien, and Szechwan.

The planting of sugar beets has also exceeded its goal, and the planted acreage has shown an increase over the previous year in such provinces and regions as Heilungkiang, Kirin, Liaoning, Inner Mongolia, and Sinkiang. Through a rational allocation of planting frequencies, the province of Heilungkiang, producing the largest amount of sugar beets, has increased its planted acreage above the target by 20,000 ha.

Through the demonstration of a strong desire for production and adoption of better forms and collective farming, the farmers were able to increase the crops' per unit acreage. Despite the typhoon in Kwangtung province and flood and drought in other areas, the majority of farmers continued to fight natural calamities and exhibited the spirit of self-sufficiency, and finally achieved an increased production of sugar raw material crops.

In this manner, the 1965 harvest of sugar cane and sugar beets marked an unprecedented crop in history well above last year's harvest, which itself was a rich harvest. In order to solve the resulting dilemma of the oversupply of sugar

raw materials and insufficient processing capacity, a group of mechanized sugar manufacturing plants have been constructed and put into operation in each sugar manufacturing district. Mechanical sugar manufacturing plants--either those newly constructed or those expanded in the 1965-66 sugar manufacturing period--numbered twenty-three, and the time required for their construction was shortened to half of that of the previous year. The commencement of operations at an opportune time increased the processing capacity of the Chinese sugar manufacturing industry by almost 30%. At the same time, the industry has produced and provided provinces, people's communes, and production units with more than one thousand "simplified sugar press units." Furthermore, by installing small semi-mechanized sugar presses in the remote border areas where transportation is inconvenient, the processing of rich sugar raw materials at the proper time was made possible.

In response to the rich harvest of sugar raw material crops, the workers in the field of the sugar manufacturing industry have promoted the movement of technical innovation and technical revolution; as a result they have improved the manufacturing process and various facilities and have fully utilized the potential of existing facilities. The processing capacity of existing old plants as a whole has been increased, and the total recovery rate of sugar has also markedly improved. The increase in sugar production was realized without increased government investment in raw materials, facilities, or manpower.

The total sugar output in China near the end of the 1965-66 sugar manufacturing period was 20% above that of the preceeding period, which itself was an unprecedented high. Since the 1954 [sic]-65 harvest was 1.356 million tons, the 20% increase would be 1.627 million tons. At the same time, the quality of the sugar has improved considerably. The sugar supplied to rural communities is not only of improved quality; the number of varieties of sugar has also been increased.

The Kwangtung Sugar Manufacturing
Industry Produces Half of the
Total National Output

There are more than one hundred sugar manufacturing plants of varying size in the province of Kwangtung, which comprises one half of the planted acreage of sugar cane and produces about one half of the total national sugar output. There are seven large State-operated plants--the Chiang-men Sugar Cane Chemical Industry Plant (daily pressing capacity of 3,500 tons), Chung-shan, Shun-te, Nan-hai, Shih-t'ou, Tzu-ni, and Tung-wan--and other large sugar manufacturing plants

such as the Hua-ch'iao Sugar Plant in Canton (daily pressing capacity of 2,500 tons) and the Chieh-yang Sugar Plant. Furthermore, fifteen small-scale sugar manufacturing plants with daily pressing capacities of 500 tons have been constructed or expanded in several sugar cane-producing areas. The newly constructed plants are at Jao-p'ing, Pai-chiao, Feng-shun, Teng-hai, Ch'ao-an, Po-lo, T'ai-shan, Kao-yao, Sui-hsi, and Pai-sha. With the completion of these construction and expansion projects, there will be a 6,100-ton increase in the daily pressing capacity. Since there was a 5,000-ton increase last year, the increase for these two years would be 11,000 tons. All the facilities at the new plants have been designed and manufactured by Chinese and in China. Prior to the construction of sugar manufacturing plants it was necessary in some areas to use animal power to press sugar cane, producing the crudest form of sugar--needless to say, this method was not very efficient and waste of raw materials resulted. In some other areas, it was necessary to transport the harvested sugar cane to a plant 100 km away, thus eventually raising the production cost of sugar. Construction of these plants means not only the solution of such problems, but also provides for mass-production of good quality sugar and progress in sugar cane production.

The record production of the province of Kwangtung in the 1964-65 sugar manufacturing season--more than 100,000 tons in excess of last year's output--was accompanied by commendable qualitative improvement and also an increase in the proportion of white (refined) sugar. The product ratio of white sugar and brown sugar in the fourth quarter of 1964 at the seven provincial plants such as Shun-te, Chung-shan, and also at the Hua-ch'iao Sugar Plant in Canton, producing one third of the total sugar output of the province, was 97% against 3% in comparison to the ratio of 27% against 28% for the preceding year. All of the sugar manufacturing plants relying on the carbonic acid method such as the Chiang-men Sugar Cane Chemical Industry Plant and the Hua-ch'iao Sugar Plant in Canton started producing white sugar exclusively from 1965. In addition, the plants relying on the sulfuric acid method at Tzu-ni, Shun-te, Tung-wan, Chung-shan, and Nanhai have all started producing white sugar only. This marks a new page in the history of sugar manufacturing in Kwangtung province in that the conventional belief that white sugar could not be produced by the sulfuric acid method was disproved.

In the field of technology, the sugar industry in the province of Kwangtung has marked several records. For instance, the Shih-t'ou Sugar Plant has set a national record by raising the average recovery rate to 97.28% at one month after the start of cane pressing.

Qualitative and Quantitative Improvements in the Kwangtung Sugar Manufacturing Industry

The 1965-66 sugar manufacturing season saw remarkable progress made with respect to sugar output, quality, and variety. The proportion of white sugar increased, resulting in a relative decrease in raw sugar. Moreover, new products such as refined confectioner's sugar for medicine, condensed milk, high-class candy, and cotton white sugar have been introduced and supplied to both domestic and foreign markets. In many of the plants that were capable of producing only the brown sugar and second-class white sugar, the production of first-class white sugar has become a reality through the continued efforts of workers to design better facilities and improve product quality.

Through active participation in the movement of technological innovation and revolution, the workers at various sugar manufacturing plants have put into operation such new devices as the vacuum automatic control for sugar boilers, the vacuum filter, and the continuous separator. By adopting the advanced neutralization pipe techniques, the sixteen medium-size sugar manufacturing plants in the province of Kwangtung have reduced the labor load and increased their productivity.

Besides, at the more than 6,000 raw sugar processing sites in the province of Kwangtung historical records have been set in regard to processing time, recovery rate of first class sugar, increased efficiency, and decreased cost. In comparison to the same amount of pressing quantity in the previous period, the production of raw sugar increased by 31,000 tons. The increase for first-class sugar was 34,000 tons, and there was a great reduction in processing cost. The products produced in the present season at 300 to 400 raw sugar processing sites throughout the province are all of first-class quality.

The Rapidly Developing Kwangsi Sugar Base

The Kwangsi Autonomous District in 1964 increased the planted acreage over the previous year by 30%, which is twice the 1949 acreage. There has been a further increase in 1965. The quantity of mechanized sugar manufacture in the 1964-65 season in the province of Kwangsi increased from the 1949 daily output of 20 to 30 tons to several thousand tons, and the number of manufacturing plants has increased from two to twelve. Compared to the preceding season, the total output in this season has shown an increase of more than 50,000 tons, and there has also been accompanied improvement in quality. The white sugar from each plant has met national standards.

The white sugar produced by the Kuei Hsien and Ling-li plants has not only met first and second class standards, but also a part of it satisfied class A standards. The plants newly opened this season at Chun-chai and Feng-shan manufactured products meeting first class standards. Through technological innovation and intensification of technical supervision, the workers at the T'ien-yang and Liu-ch'eng sugar plants continued to increase the processed quantity. Compared to the preceding season, there was a decrease in the production cost at each plant.

The total output of mechanized sugar manufacturing in the 1965-66 sugar season was considerably greater than last year. The quality of white sugar reached a higher level, with the large-scale sugar manufacturing plants producing the class A sugar and the medium and small scale plants, the first class sugar. Even some of the new plants were able to produce first class sugar.

In the 1965-66 sugar manufacturing season, six plants have been newly constructed and put into operation. The sugar manufacturing plant with a daily pressing capacity of 500 tons at the state-operated Hua-ch'iao farm at Wu-ming was also put into operation this season. At one of the old sugar plants in Kuei Hsien, the production of class A sugar in this season showed an 80% increase. The Nanning sugar manufacturing plant constructed in the second half of last year produced white sugar in the first cane-pressing period, half of which was class A sugar. The sugar manufacturing facilities with daily pressing capacity of 500 tons at the Wu-chou Sugar Manufacturing Plant were all designed, manufactured, and installed by the plant employees, and its operating this season has boosted considerably the output of white sugar at the plant. This plant is one of the two existing from the days prior to the liberation. Originally, the pressing capacity was merely 30 tons per day, which increased to 200 tons per day by 1959. In the last several years the province of Kwangsi has in this manner become a newly rising sugar base in China.

Continued Increase Over Four Consecutive Years in the Province of Fukien

By producing over 169,000 tons of sugar in the 1964-65 sugar manufacturing season, the province of Fukien has doubled last year's output. For the fourth consecutive year, the sugar manufacturing season has shown a 20% increase of sugar output over that of the preceding season. The size and magnitude of product quality improvement, reductions in cost and raw material consumption, and the increase in labor productivity in the present season have been unprecedented since the liberation.

Of the eight mechanized sugar manufacturing plants that were underdeveloped in technical standards and production in the preceding season, six plants have achieved the level of advanced or relatively advanced enterprises, and others have improved upon their backward setup. The Hsien-yü sugar manufacturing plant, with less than satisfactory facilities up to the present, has now renovated 17 major facilities, increased the daily pressing capacity by more than 60%, and expanded the extent of production mechanization. The smallest mechanized sugar manufacturing plant at Ch'uan-chou has finally reached the level of large-scale plants through continuous efforts in regard to product quality, safety, production rate, and processing time.

Notable achievements have been made at each sugar manufacturing plant with regard to technological innovation and revolution. The number of major technological innovations materialized in the present season at the ten plants is over 200. The workers at the large, mechanized Chang-chou Sugar Manufacturing Plant have improved on many manufacturing processes. The creation of the "clear" manufacturing process alone enabled sugar production increase of over 1,000 tons and the saving of several thousand tons of fuel and the labor of many workers. The class A white sugar comprises more than 90% of the total output. The workers at the Fu-ch'ing Sugar Manufacturing Plant--a small, mechanized plant--continued their technological innovations, manufactured and installed by themselves many plant facilities, and noticeably increased both the production quality and quantity.

Increase of Sugar Manufacturing Capacity in Other Provinces

The total sugar output of the province of Yunnan in the 1964-65 sugar manufacturing season showed a 40% increase over the preceding season, within which the class A sugar and first-class sugar each showed 12% increases. Since then, 22 medium and small scale sugar manufacturing plants have been constructed, increasing output capacity by 50%. The newly constructed plants are located in such sugar cane-producing areas as Mi-lo, Ho-ch'ing, Pao-shan, and Hung-ho. In Mi-lo Hsien of the Hung-ho Ha-ni and Yi Autonomous Chou where a large quantity of sugar cane is produced more than one hundred trucks had to be used to transport the cane to the K'ai-yuan Sugar Manufacturing Plant over a period of three to four months. The construction of a mechanized sugar manufacturing plant with a daily pressing capacity of 500 tons at Mi-lo eliminated this transportation problem. In Lu-hsi Hsien of the Te-Hung Thai and Ching-po Autonomous Chou, a medium-scale mechanized sugar manufacturing plant has been constructed and

has contributed to the increased production of sugar cane.

In the 1964-65 sugar manufacturing season Szechwan Province has also shown a 42,800-ton increase over the previous season.

Through the operation of a modern sugar manufacturing plant at Shih-ho-tzu from 1959, the Sinkiang Uighur Autonomous Region produced twice as much sugar in the 1964-65 season as in the season before. In view of the special needs of the area's national minorities such as the Uighurs and the Kazakhs, improvements have been made on the existing facilities in 1964 and the output of lump sugar was tripled in 1964-65. The total output of last year from this plant alone was sufficient to provide an average of 2.5 kg to each person in the Sinkiang Uighur Autonomous Region. In this manner, with respect to sugar, Sinkiang has become completely self-sufficient.

Thus, the sugar manufacturing industry in China has entered a new phase of phenomenal progress. Although the sugar raw materials have suffered from natural calamities, increased output has been obtained. Mechanized facilities have been qualitatively improved through technological innovations and single-handed production of processers with daily pressing capacities of 500-1,000 tons. Raw material crops have been improved and the harvest per unit area has increased. Also, the sugar content has increased. Increases in sugar cane and sugar beet acreage and the consequent increase in the raw materials output are bound to boost sugar output. It appears safe to conclude that this remarkable rate of progress in the sugar industry will continue for some time in the future.

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Photo Captions

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Photo 1: Sugar cane being transported on special line to sugar manufacturing plant (Chien-hua Brigade, Lung-hua People's Commune, Hsien-yu Hsien, Fukien Province). The Chien-hua Brigade is nationally known for high productivity.

\$HUN-TE
22 51 N 113 15 E
Photo 2: Warehouse at the Shun-te Sugar Manufacturing Plant in Kwangtung Province constructed in 1935. Since 1958 additions have been made for paper manufacture, brewing, and Furfural manufacture; thus the plant has become a general manufacturing plant. The annual output for 1963 was more than 20,000 tons.

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HU-HO-HAO-TE
Photo 3: Sugar manufacturing plant at Huhehot in Inner Mongolia--a newly developing sugar beet producing area. The rich 1965 harvest of sugar beets is being rushed to the plant.

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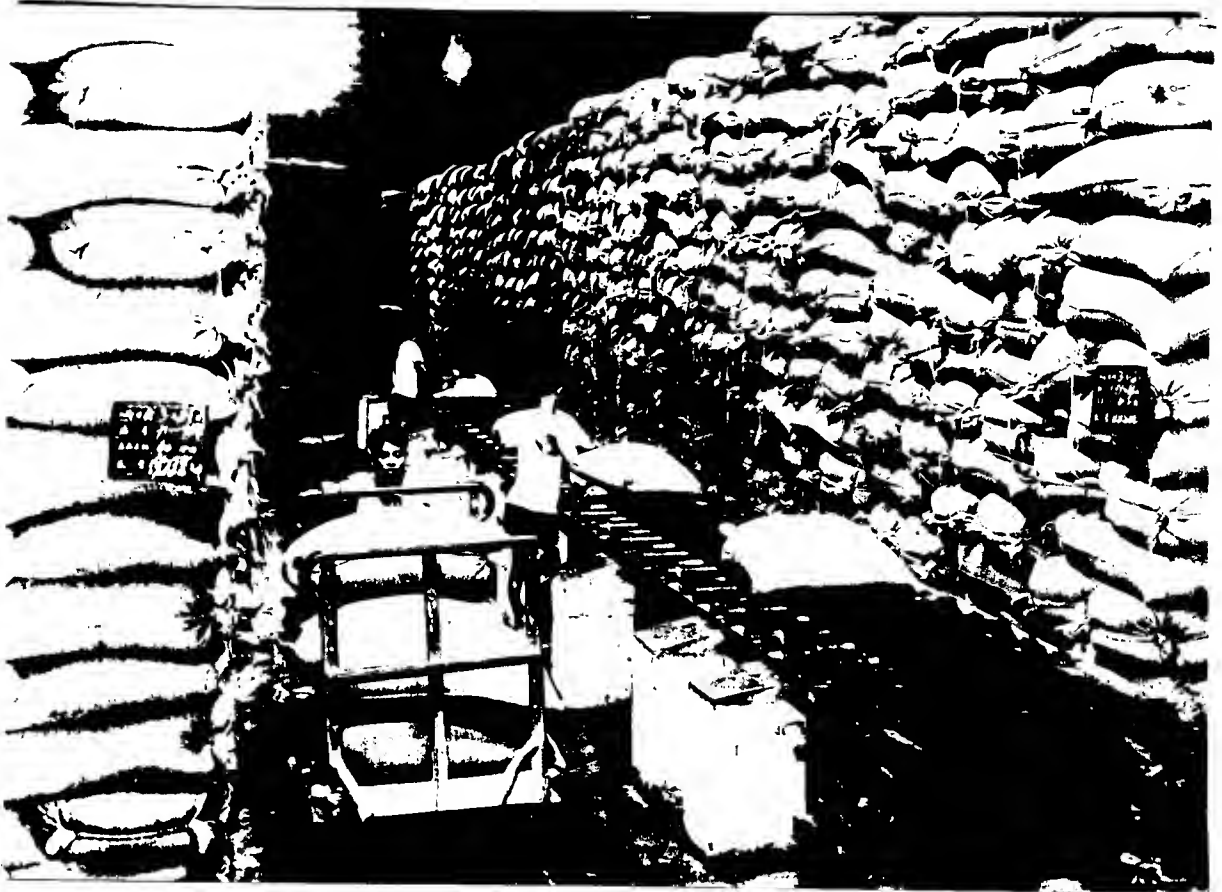
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Warehouse at the sugar manufacturing plt. Prior to 1966.
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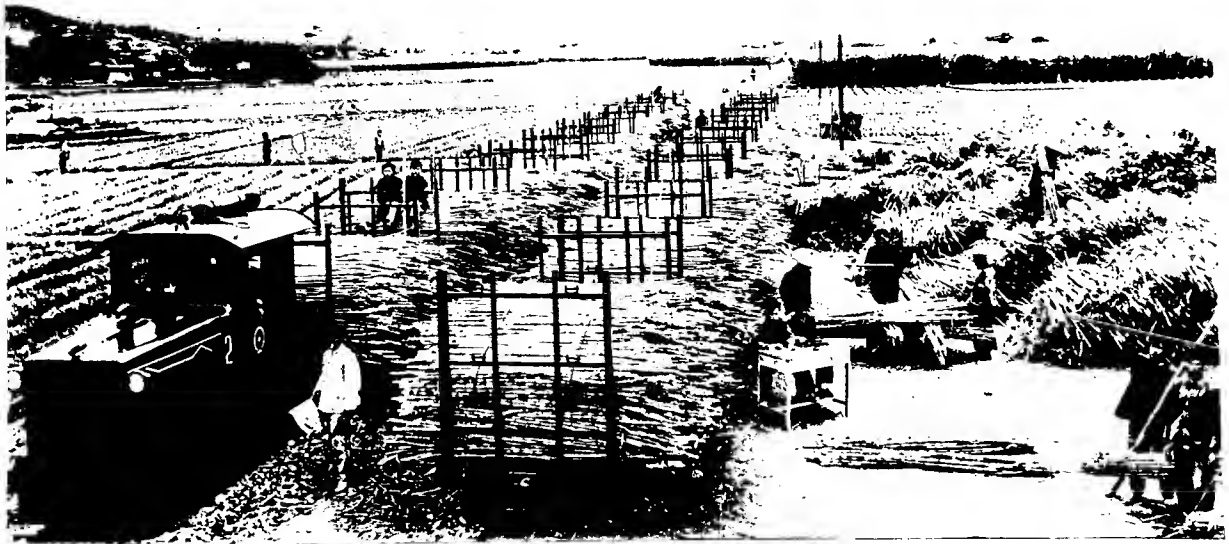
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CHINA [REDACTED] HSIEN-YU HSIEN 25 22 N 118 42 E
Sugar cane being transported to sugar plt by the Chien-hua Brigade.
Prior to 1966. [REDACTED]
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Photo 1



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